11. Kartik

Program Name: Kartik.java   Input File: kartik.dat

Kartik loves to mess around with his friend's names, as well as his own, and has come up with several processes to do this. For example, he may take the leftmost character of his name, delete it, and put a dash on the other end. He calls this a left shift 1, or LS-1, for short. He would notate this as: **LS-1 KARTIK**, and would write the result as:

KARTIK ==> ARTIK-

Similarly, he would do a Right Shift, followed by a number, and call it RS-N, with N being some integer value, no longer than the name he is dealing with. He would make sure all of the numbers he chooses for any of his processes don't go beyond the number of letters in the name he is messing with.

He also does a "circulate", which works like the "shift" operation, except that he inserts each removed letter on the other end instead of putting a dash. He can circulate the letters, either to the right or to the left, with an N value indicating how many times to circulate, but again no greater than the length of the name he is messing with. His notation for this is either RC-N, or LC-N. For example, if he did RC-2 AIGUO, the result would be:

AIGUO ==> UOAIG

where the rightmost two letters of the name are circulated back to the front.

Another circulate process he uses is Mid Circle, and he uses four items to control this one: S, indicating a starting position in the name, 1 being the first letter of the name, L being a number that indicates how many letters of the name to be circulated, starting from S, X indicating how many times to circle the letters, and finally the character R or L to indicate the direction of the circulate. For example, MC-243R EKATERINA would take "KATE", which is 4 letters starting at position 2, and circulate those letters 3 times to the right, which would make "ATEK", and thus the full effect would be:

EKATERINA ==> EATEKRINA

The last process he likes to use is a reverse, but not of all of the letters, but just a few somewhere in the name. For example, if he applied a REV-42 to his friend's name, DAISUKE, he would start with the fourth letter, an S, taking 2 letters from there, "SU", reversing them within the name, resulting in:

DAISUKE ==> DAIUSKE

What he really likes to do is combinations. For example, RS-2 REV-24 HEATHER, would first produce HHTAEER with the reverse, and then --HHTAE. Sometimes he goes crazy and puts several combinations (no more than 6) with a name, always doing the one closest to the name first, and then working backwards until all have been completed.

Input: Several lines of data, each on one line, each consisting of a process, or series of processes, ending with a name, all in caps. Single spaces separate each item in the data line.

Output: The original name, followed by **" ==> "**, and then the resulting name after all processes have been completed.

Sample input:
```
LS-1 KARTIK
RC-2 AIGUO
MC-243R EKATERINA
REV-42 DAISUKE
RS-2 REV-24 HEATHER
```

Sample output:
```
KARTIK ==> ARTIK-
AIGUO ==> UOAIG
EKATERINA ==> EATEKRINA
DAISUKE ==> DAIUSKE
HEATHER ==> --HHTAE
```